

**R E M A R K S**

This is responsive to the Office Action mailed October 24, 2008 ("Office Action").

**Claim Rejections – 35 U.S.C. §103**

Claims 9-12, 14-18 and 20-23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nakagawa et al. (U.S. Patent No. 6,024,774) ("Nakagawa").

In addition to the arguments previously presented and hereby incorporated by reference, Applicants present the following arguments. Amended claims 9 and 16 of the present invention recite "a cooling jacket surrounding the catalyst bed for maintaining the oxidation reactor operating temperature from about 90°C to about 180°C." According to the present invention, the "cooling jacket should contain a circulating coolant that can be water, steam, or air, or, in one illustrative embodiment, the hydrocarbon fuel feed to the fuel processor for energy efficiency." (Paragraph 0007.) Further, the cooling jacket is depicted in Figure 2 as follows: "By using a cooling jacket 230 containing water, steam, air, or a cool hydrocarbon fuel feed stream, reactor 200 can be maintained in the desired operating temperature range of from about 90.degree. C. to about 180.degree. C." (Paragraph 0037.)

According to the Examiner, Nakagawa discloses "a cooling jacket (7) for maintaining the reactor operating temperature." (Office Action, p. 2.) Nakagawa states as follows: "The coolant circulation pipe 7, that is, cooling means serves to control the temperature of the reaction site such that it does not exceed the suitable temperature for the above reactions between carbon monoxide and water, and lithium zirconate, since these reactions are of heat-generating type. It should be noted here that the cooling means is not limited to the circulation pipe, but a fin tube, that is, a spiral coolant circulation tube equipped with a plurality of disk-like fins piercing through them, may be arranged in the inner tube 2." (Column 4, lines 26-34.) Further, Nakagawa's coolant circulation pipe 7 is depicted in Figure 1.

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Both the excerpts from the specifications and the figures illustrate Nakagawa does not disclose the cooling jacket of the present invention. As a result, claims 9-12, 14-18 and 20-23 are not unpatentable over Nakagawa. Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 9, 12, 15, 16, 21, and 23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Clawson et al. (U.S. Patent No. 6,641,625) ("Clawson").

Amended claims 9 and 16 of the present invention recite "a cooling jacket surrounding the catalyst bed for maintaining the oxidation reactor operating temperature from about 90°C to about 180°C." According to the present invention, the "cooling jacket should contain a circulating coolant that can be water, steam, or air, or, in one illustrative embodiment, the hydrocarbon fuel feed to the fuel processor for energy efficiency." (Paragraph 0007.) Further, the cooling jacket is depicted in Figure 2 as follows: "By using a cooling jacket 230 containing water, steam, air, or a cool hydrocarbon fuel feed stream, reactor 200 can be maintained in the desired operating temperature range of from about 90.degree. C. to about 180.degree. C." (Paragraph 0037.)

According to the Examiner, Clawson discloses "a cooling jacket (97) for maintaining the reactor operating temperature (Fig. 1)." (Office Action, p. 4.) Clawson states as follows: "The PrOx reactor 13 of the preferred system comprises a means for actively cooling the catalyst within the second zone 94. A preferred means is shown in FIG. 13. Water/steam tube 97, double-helically configured throughout the catalyst bed 95, provides a continuous heat exchange with the catalyst bed 95. That is, a flow of water from a convenient source is pumped continuously into the tube 97 through the water inlet 86 of the PrOx reactor 13. The cooling fluid flows through the water/steam tube 97 drawing heat from the catalyst bed 95, which is in contact with the water/steam tube 97, and discharging from the reactor 13 at the water outlet 87. The water/steam tube 97 is preferably made from a very good conductive, but non-reactive metal, such as 304 SS, to further assist in

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the heat exchange. It should be understood that several other boiler tube arrangements would be suitable for actively cooling the catalyst bed including, but not limited to, single-helical, longitudinal, and any other configuration which results in the boiler tubes being interspersed throughout the second zone 94 or catalyst bed 95. It should also be understood that the water/steam tube 97 may be extended into the first zone 91 to actively cool the reformate before it enters the second zone 94." (Column 23, lines 46-64.) Further, Clawson's tube 97 is depicted in Figure 13.

Both the excerpts from the specifications and the figures illustrate Clawson does not disclose the cooling jacket of the present invention. As a result, claims 9, 12, 15, 16, 21, and 23 are not unpatentable over Clawson. Reconsideration and withdrawal of the rejection is respectfully requested.

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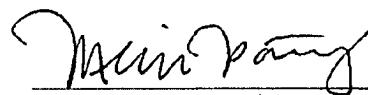
### Conclusion

All of the stated grounds of objection and rejection are believed to have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

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Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,



Melissa Patangia  
Attorney for Applicants  
Reg. No. 52,098

April 23, 2009

Customer No. 38393  
Chevron Services Company  
P. O. Box 4368  
Houston, Texas 77002-4368  
713-754-2917 (Voice)  
713-754-2944 (Fax)